

OCCURRENCE OF THE BARRELFISH, *HYPEROGLYPHE PERCIFORMIS*  
(TELEOSTEI, PERCIFORMES, STROMATEOIDEI),  
IN THE MEDITERRANEAN SEA AND OFF PORTUGAL.

by

Christine KARRER (1)

ABSTRACT. — The holotype of *Centrolophus valenciennesi* Moreau, 1881, from Marseille, previously synonymized either with *Centrolophus niger* (Gmelin, 1788) or with *Schedophilus ovalis* (Cuvier, 1833) was reexamined and identified as *Hyperoglyphe perciformis* (Mitchill, 1815) ; this is the first record of this species in the Mediterranean. Although the holotype of *Centrolophus newtoni* Osorio, 1895, based on a specimen from Portugal, was destroyed by fire in 1978, it is established that this species, synonymized with *Centrolophus niger*, is in fact *Hyperoglyphe perciformis*.

RÉSUMÉ. — L'holotype de *Centrolophus valenciennesi* Moreau, 1881, fondé sur un exemplaire de Marseille, et mis en synonymie par les divers auteurs soit avec *Centrolophus niger* (Gmelin, 1788), soit avec *Schedophilus ovalis* (Cuvier, 1833) a été réexaminé en détail et identifié à *Hyperoglyphe perciformis* (Mitchill, 1815), ce qui constitue la première mention de cette espèce en Méditerranée. Bien que l'holotype de *Centrolophus newtoni* Osorio, 1895, fondé sur un exemplaire du Portugal, ait été détruit par le feu en 1978, sa description permet de le mettre aussi en synonymie avec *Hyperoglyphe perciformis*.

Keywords : Pisces, Centrolophidae, *Hyperoglyphe perciformis*, Taxonomy, MED Western Mediterranean, ANE Portugal.

The centrolophid fish *Hyperoglyphe perciformis* was first figured and later described by Mitchill (1815, 1818) as *Coryphaena perciformis* from the harbour of New York. Juvenile specimens up to a maximum length of 40.6 cm (Smith, 1898) are not uncommon in the western Atlantic from Cape Hatteras to outer Nova Scotia, with record two from the Grand Banks (Merriman, 1945; Anon., 1953 and Leim & Scott, 1966). They also appear to be vagrants in the eastern Atlantic (map), based on a few records in European waters (Andrews as *Centrolophus pomphilus*, 1871; Cornish as *Pimelepterus cornubiensis*, 1874, type specimen probably lost; Holt & Byrne, 1903; Gueguen *et al.*, 1975; Quéro *et al.*, 1976 and Du Buit *et al.*, 1977; Pethon, 1983) and single specimens from Iceland (Saemundsson, 1905) and west of the Azores (Murray & Hjort, 1912 and Kæfæd, 1952). Four additional specimens were caught at more southern localities (Kukuev, 1982; Norwegian merchant vessel « Ragnhild », 33°20' N, 42°17'W, 10th July 1875 - 1 : BMNH 1901.2.5.2,2 : ZMO J 2998). For the history of generic synonyms see Merriman (1945).

(1) c/o Zoologisches Museum der Universität Hamburg, Martin-Luther-King-Platz 3, D-2000 Hamburg 13.

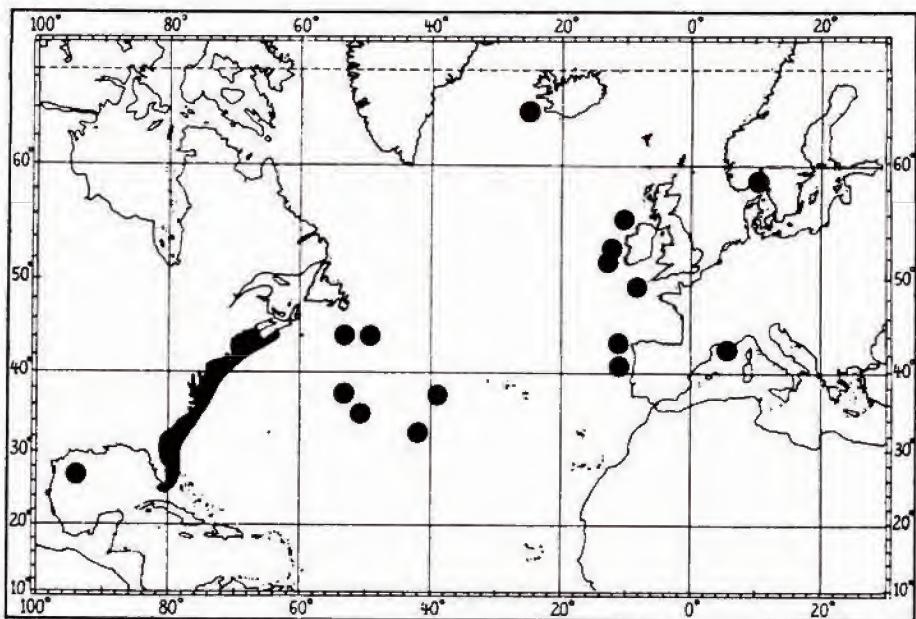


Fig. 1. — Distribution de *Hyperoglyphe perciformis*

The Barreffish is generally associated with wreckage, flotsam, sailing ships, or has been observed inside boxes or barrels. It lives in tropical and subtropical deep waters, and fry may be displaced by currents. It is often seen in shoals of « as many as from fifty to seventy five » (Goode, 1884 ; for further quotations see Merriman, 1945). Andrews (1871) reported two specimens from Dingle Harbour and mentioned that later « hundreds were seen playing over a piece of floating wreckage » off that coast (one is preserved as H 319 in NMI). Holt & Byrne (1903) quoted the description of a large shoal at South Island, Aran Islands : « At the time, owing to the tide being low, it was like a horse-shoe, so that if the islanders took twenty fathoms of net and put it across the entrance they would save thousands upon thousands of fish ». (one of them has been deposited in BMNH 1903.7.23.76).

Until thirty years ago nothing was known of the breeding habits of the Barreffish (Bigelow & Schroeder, 1953) and all records in coastal waters of the western Atlantic were clearly seasonal (June to December *fide* Merriman, 1945). Large adults up to 745 mm SL were subsequently taken farther south between Key West (Florida) and off Virginia in depths to 244 m (Springer, 1954 ; Schwartz, 1963 ; Merriner *et al.*, 1970). In 1984 they were caught in the Gulf of Mexico (Schwartz, pers. communication).

According to Merriman (1945) the smallest Barreffish (35 mm SL) was caught in 1885, but in fact smaller ones can be found in collections (USNM 84506, 3 : 26.6-28.3 mm, « Albatross » st. 2711 : 36°20'24"N, 74°46'30"W, 16th Sept. 1886, off Long Island ; and ZMC P 691522-28, 7 : 22.0-36.3 mm, « Caroline Kock » st.

313 : 37°10'N, 52°40'W, 25th May 1911, western Central Atlantic). As in *Hyperoglyphe antarctica* (Carmichael, 1818) they resemble elder stages and differ clearly from juvenile *H. bythites* (Ginsburg, 1954) described by Dawson (1971). A description of these small specimens will be published later.

Moreau (1881) described a small fish, left behind by Valenciennes, as *Centrolophus valenciennesi*, type locality Marseille, and noted its resemblance to *C. ovalis* Cuvier, 1833 (now *Schedophilus*). The holotype is registered as no. 5128 in the MNHN, no further specimens are known. Regan (1902) recognized this species as a member of the genus *Lirus*, while Tortonese (1958) placed it in *Mupus*. Both genera are currently considered synonyms of *Schedophilus*. Later Italian authors placed it in the synonymy of *S. ovalis* (Tortonese, 1960; Bini, 1968), while Haedrich (1967, 1973), after examination of the holotype, considered *C. valenciennesi* to be a synonym of *Centrolophus niger* (Gmelin, 1788).

External morphology shows obvious differences between *C. valenciennesi* and *C. niger* (of same size), and these are well confirmed by radiographs. The ossification

Table I. — Proportions (in percent of SL) and counts of *H. perciformis*.

	<i>C. valenciennesi</i> holotype	<i>H. perciformis</i> 9 specimens
SL (in mm)	118	124-148
Head length	33.1	30.8 - 32.7
Snout length	8.1	7.9 - 9.7
Eye diameter	8.5	6.7 - 7.9
Interorbital width	11.9	11.0 - 13.5
Postorbital distance	16.9	16.0 - 17.8
Upper jaw length	11.7	11.9 - 12.6
Predorsal distance	37.1	36.2 - 38.5
Preanal distance	61.4	58.3 - 62.4 (8)
Prepectoral distance	29.8	28.3 - 31.5 (8)
Prepelvic distance	35.2	34.3 - 37.0 (7)
Length of dorsal fin	53.1	55.1 - 58.4 (8)
Length of anal fin	26.1	26.5 - 29.8
Pectoral length	> 22.9	20.2 - 23.4 (7)
Pelvic length	21.9	19.5 - 22.3 (7)
Maximum depth	34.7	37.5 - 40.9 (8)
Caudal peduncle, length	18.0	16.1 - 19.3
Caudal peduncle, depth	10.5	10.7 - 11.6
D	8/21	8/20 - 22
A	3/16	3/16 - 18
P	21	19 - 22
V	1/5	1/5
Vertebrae	10 + 15	10 + 15
Lateral line	about 88	83 - 96

is much stronger in Moreau's species than in *C. niger*, while the shape and arrangement of elements in the axial skeleton are quite different. *Centrolophus valenciennesi* has strong but stout spines in the fins, which can be clearly distinguished from the soft rays, whereas in *C. niger* all spines are very weak and nearly impossible to separate from the soft rays, therefore usually the total number of elements is given : D 35-41, A 23-25 (Templeman & Haedrich, 1966) ; *C. valenciennesi*, however, has only D 8/21, A 3/16.

*Centrolophus valenciennesi* agrees completely with *H. perciformis* and is doubtless a synonym of this species. Table I lists the data for the holotype of *C. valenciennesi* and for nine slightly larger *H. perciformis* from the western and Central Atlantic (MSNG 12802, 1 of two : 126 mm ; SMF 1535, 2 : 124, 130 mm ; USNM 3326, 2 of five : 143, 148 mm ; ZMH 6604, 1 : 143 mm ; 6605, 1 : 135 mm ; 15496, 2 : 128, 134 mm).

*Centrolophus newtoni* Osorio, 1895, was based on a single specimen of 310 mm TL from Mattosinhos, Portugal, and considered to be related to *C. valenciennesi*. Following the original description it was retained as a valid species in subsequent Portuguese publications (Seabra, 1911 ; Nobre, 1935 ; Albuquerque, 1954-56 ; Castro, 1967). Lozano y Rey (1952) placed it in the synonymy of *C. niger*, without explanation, and Lozano (1963) followed him. Osorio's species was neglected in supraregional studies (e.g. Haedrich, 1967, 1973).

As mentioned above, *C. niger* has D 35-41, A 23-25 with feeble spines, whereas *C. newtoni* has D 7/1/21, A 3/16. Because Osorio did not report any weakness of fin spines we have to assume that they were well recognizable, and in this case his fish was certainly not *C. niger*. Original description, in addition to the number of dorsal and anal fin rays, allows one to conclude that *C. newtoni* was in fact *H. perciformis*, although the holotype was destroyed by the fire in the Museu Bocage collection in Lisboa in 1978. Table II compares data given by Osorio with the same characters in *C. niger*.

Table II. – Comparison of some characters of *C. newtoni* (quoted from Osorio, 1895) with those of *C. niger*.

	<i>C. newtoni</i>	<i>C. niger</i>
Resemblance	to <i>C. valenciennesi</i>	many differences
Area over the orbit	projecting crest	rounded
Lateral line	posterior third straight	posterior half or more straight
Length of pelvics	more than half the distance V-A	shorter than half the distance V-A
Ventral spine	shorter than half the length of the soft rays	nearly of the same length as soft rays

Osorio did not give the number of scales in the lateral line, although these must have been present. For the dorsal region he wrote that they were small, which points to *H. perciformis* (L.I. 83-88, fide Merriman, 1945) but not to *C. niger* (L.I.

160 to about 210, fide Templeman & Haedrich, 1966). As almost all characters of *C. newtoni* neither correspond to *C. niger* nor to any other West European centrolophid species except to the Barreffish, it seems justified to put *C. newtoni* in the synonymy of *H. perciformis*. However, one comment by Osorio is contradictory : depth in *C. newtoni* more than 4 times in TL. *Hyperoglyphe perciformis* is a relatively deep-bodied fish, the depth being 3.2 in NMW 77595 of about 300 mm TL. The slenderness of the holotype of *C. newtoni* was perhaps an artefact before preservation and due to shrinkage in alcohol.

Moreau's specimen is the first record of *H. perciformis* in the Mediterranean. At 150 mm TL (given by the author) it is by far the smallest specimen so far caught in European waters (otherwise 310-410 mm TL; for the specimen reported by Gueguen *et al.*, 1975, the length is unknown). The small size makes it unlikely to be a straggler from the western Atlantic. Although the possibility that labels have been mixed cannot be definitely excluded. However, isolated records far away from the previously known distribution are not unusual. Thus for a long time the large *Cubiceps capensis* (Smith, 1849), taken near Genoa and described by Ariola (1912), was supposed to be the adult of *C. gracilis* Lowe, 1843. In fact its identification is correct and *C. capensis* occurs in the Mediterranean together with the much smaller species *C. gracilis*. There is no current evidence that *H. perciformis* does not inhabit the Mediterranean.

I am very greatful to H. Ahnelt, G. Arbocco, M.L. Bauchot, I. Byrkjedal, R. Dohse, R.H. Gibbs, Jr., J. Gueguen, G. Jónsson, W. Klausewitz, J. Nielsen, H.-J. Paepke, P. Pethon, C.E. O'Riordan, L. Saldanha and A. Wheeler for their help in preparing this paper, especially to H.-Chr. John, F.J. Schwartz and P.J.P. Whitehead for comments and correcting the English.

#### REFERENCES

- ANON. 1953. — Annual Report on the Fisheries Research Board of Canada for year 1952, 1-231.
- ALBUQUERQUE R.M., 1954-1956. — Peixes de Portugal e ilhas adjacentes. Chavas para a sua determinação. *Port. Acta biol. (B)*, 5 : xvi + 1164, 445 fig.
- ANDREWS W., 1871. — Notes on the ichthyology of the south-west coast of Ireland. *Proc. nat. Hist. Soc. Dublin*, 6 (1) : 68-71.
- ARIOLA V., 1912. — Nuovo pesce abissale del Golfo di Genova (*Cubiceps capensis* Smith). *Riv. mens. Pesca Idrobiol.*, 7 : 185-192, pl. 6.
- BIGELOW H.B. & W.C. SCHROEDER, 1953. — Fishes of the Gulf of Maine. *Fishery Bull. Fish Wildl. Serv. U.S.*, 53 : viii + 1-577, 288 fig.
- BINI G., 1968. — Atlante dei Pesci delle coste italiane. 6, Osteitti. Milano, 177 p., fig., col. fig.
- CASTRO J.M.O., 1967. — Nomenclatura portuguesa do pescado. *Publicoes Gabin. Estud. Pescas*, (39) : 1-288.
- CORNISH T., 1874. — *Pimelepterus Cornubiensis*, a supposed new fish, at Penzance. *Zoologist*, 9 : 4255-4258.

- DAWSON C.E., 1971. — Notes on juvenile black driftfish, *Hyperoglyphe bythites*, from the northern Gulf of Mexico. *Copeia* : 732-735, 2 fig., 2 tab.
- DU BUIT M.H., J. GUEGUEN, J. LAMOLET & J.C. QUÉRO, 1977. — Observations sur les poissons rares en 1975. *Annls biol. Copenh.*, 32 : 185-188.
- GUEGUEN J., LAMOLET J. & J.C. QUÉRO, 1975. — Observations sur les poissons rares en 1973. *Annls biol. Copenh.*, 30 : 210-212.
- GOODE G.B. et al., 1884. — Fishes. p. 163-682. In : The fisheries and fishery industries of the United States. Section I. (ed. G.B. GOODE). Washington, xxxiv + 895 p.
- HAEDRICH R.L., 1967. — The stromateoid fishes : systematics and a classification. *Bull. Mus. comp. Zool. Harv.*, 135 : 31-139, 56 fig., 2 tab., 1 pl.
- 1973. — Centrolophidae. p. 559-561. In : *Clofnam 1*. (ed. J.C. Hureau & Th. Monod). Paris, xx + 683 p.
- HOLT E.W.L. & L.W. BYRNE, 1903. — On the British and Irish species of the family Stromateidae. *Rep. Sea Indl Fish. Ire.*, (2) (1901) (5) : 70-76, 1 fig., pl. 4, 5.
- KOEFOED E., 1952. — Zeomorphi, Percormorpha, Plectognathi. *Rep. scient. Results Michael Sars N. Atlant. deep Sea Exped.*, 4 (2) (2) : 1-26, 3 fig., 3 pl.
- KUKUEV E.I., 1982. — Fish fauna of the Corner Mountains and New England submarine ridge in the western North Atlantic. p. 92-109. In : Insufficiently studied fishes of the open ocean (ed. N.V. Parin). Moscow, 140 p.
- LEIM A.H. & W.B. SCOTT, 1966. — Fishes of the Atlantic coast of Canada. *Bull. Fish. Res. Bd Can.*, (155) : 1-485, fig., 4 col. pl.
- LOZANO F., 1963. — Nomenclatura Ictiológica. Nombres científicos y vulgares de los peces españoles. *Trab. Inst. esp. Oceanogr.*, (31) : xi + 1-271.
- LOZANO y REY L., 1952. — Peces fisoclistos. Subserie torácicos. *Memis R. Acad. Cienc. exact. fis. nat. Madr.* (Cienc. nat.), 14 : xv + 1-703, 31 fig., 51 pl.
- MERRIMAN D., 1945. — Notes on *Palinurichthys perciformis*, and the evidence for its bathypelagic habitat. *Trans. Conn. Acad. Arts Sci.*, 36 : 837-848, 1 pl.
- MERRINER J.V., FOSTER W.A. & F.J. SCHWARTZ, 1970. — The Barrelfish, *Hyperoglyphe perciformis* (Pisces : Stromateidae), in Pamlico Sound, N.C., and adjacent Atlantic Ocean. *J. Elisha Mitchell scient. Soc.*, 86 : 28-30, 1 tab.
- MITCHILL S.L., 1815. — The fishes of New York, described and arranged. *Trans. lit. phil. Soc. N.Y.*, 1 : 355-492, 6 pl.
- 1818. — [ Supplement to « The fishes of New York... » ] *Am. mon. Mag. crit. Rev.*, 2 : 241-248.
- MOREAU E., 1881. — Histoire naturelle des poissons de la France. 2. Paris, 572 p., fig. 83-145.
- MURRAY J. & J. HJORT, 1912. — The depths of the ocean. London, xx + 821 p., 575 fig., 4 map, 9 pl.
- NOBRE A., 1935. — Fauna marinha de Portugal. I. Vertebrados. Porto, lxxxiv + 21 + 5 + 574 p., fig.
- OSORIO B., 1895. — Segundo appendice ao catálogo dos peixes de Portugal de Félix Capello. *Jorn. Sci. math. phys. nat.*, (2) 3 : 254-269.
- PETHON P., 1983. — The Barrelfish *Hyperoglyphe perciformis*, a centrolophid fish new to the Norwegian fauna. *Fauna norv.*, (A) 4 : 53-55, 3 fig.
- QUÉRO J.C., VERRON R. & Y. CATTIN, 1976. — Observations ichthyologiques effectuées au port de La Rochelle en 1975. *Annls Soc. Sci. nat. Charente-Marit.*, 6 : 177-190, 6 fig., tab.
- REGAN C.T., 1902. — A revision of the fishes of the family Stromateidae. *Ann. Mag. nat. Hist.*, (7) 10 : 194-207.
- SAEMUNDSSON B., 1905. — Zoologiske Meddelelser fra Island VIII. 3 Fiske, nye for Island. *Vidensk. Meddr dansk naturh. Foren.*, 67 : 1-5.
- SCHWARTZ F.J., 1963. — The Barrelfish from Chesapeake Bay and the Middle Atlantic Bight, with comments on its zoogeography. *Chesapeake Sci.*, 4 : 147-149, 1 tab.
- SEABRA A.F. (de), 1911. — Catalogue systématique des vertébrés du Portugal. V. Poissons. *Bull. Soc. port. Sci. nat.*, 5 : 129-224.

- SMITH H.M., 1898. — The fishes found in the vicinity of Woods Hole. *Bull. U.S. Fish Commn.*, 17 : 85-111, 1 fig.
- SPRINGER V.G., 1954. — Two new records of fishes (*Palinurichthys*, *Cheilodipterus*) from Florida and the Gulf of Mexico. *Copeia*, (1) : 74-75.
- TEMPLEMAN W. & R.L. HAEDRICH, 1966. — Distribution and comparisons of *Centrolophus niger* (Gmelin) and *Centrolophus britannicus* Günther (Centrolophidae) from the North Atlantic. *J. Fish Res. Bd Can.*, 23 : 1161-1185, 6 fig., 4 tab.
- TORTONESE E., 1958. — Elenco dei Leptocardi, Ciclostomi, Pesci cartilaginei e ossei del Mare Mediterraneo. *Atti Soc. ital. Sci. nat.*, 97 : 309-345.
- 1960. — Revisione dei Centrolophidae (Pisces Perciformes) del Mare Ligure (1). *Annali Mus. civ. Stor. nat. Giacomo Doria*, 71 : 57-81, 5 fig.